

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
7 April 2005 (07.04.2005)

PCT

(10) International Publication Number
WO 2005/030426 A2

(51) International Patent Classification⁷: **B23K 26/00**

(21) International Application Number:
PCT/US2004/026513

(22) International Filing Date: 13 August 2004 (13.08.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/501,337 9 September 2003 (09.09.2003) US

(71) Applicant (for all designated States except US): **MAT-SUSHITA ELECTRIC INDUSTRIAL CO., LTD**
[JP/JP]; 1006, Oaza Kadoma, Kadoma-shi, Osaka
571-8501 (JP).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **GREIG, Christian, F.**
[US/US]; 31 Delaware Road, Nashua, NH 03062 (US).

(74) Agent: **NIGON, Kenneth, N.**; RatnerPrestia, P.O. Box
980, Valley Forge, PA 19482 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

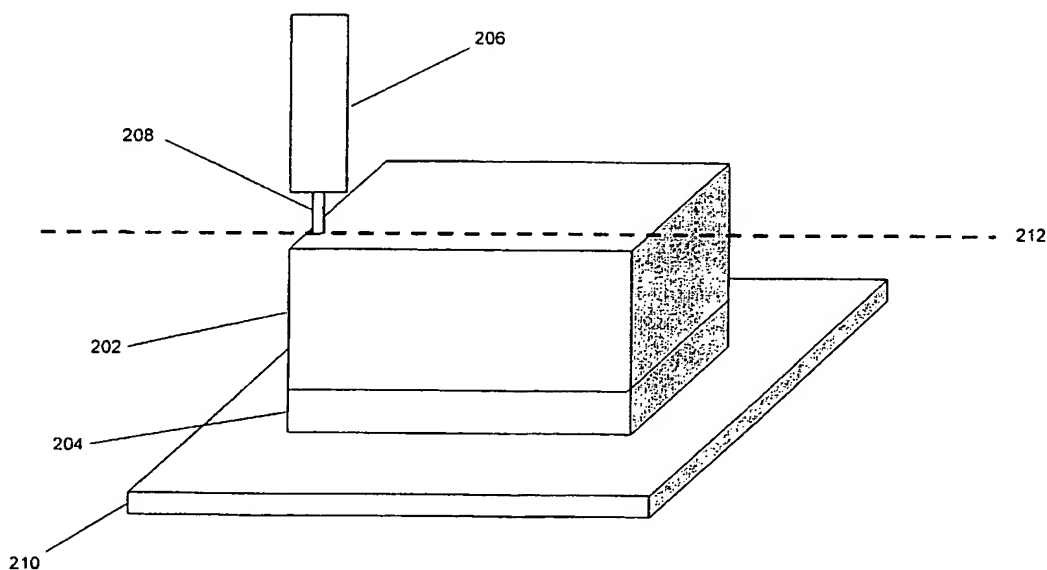
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

[Continued on next page]

(54) Title: **SYSTEM AND METHOD FOR LASER WELDING FOILS**



(57) Abstract: A method and apparatus, for welding together a pair of metal foils of different thickness. The method includes the steps of positioning a thin metal foil adjacent a thick metal foil and applying a continuous wave laser beam to the thick metal foil to weld at least a portion of the thick metal foil and the thin metal foil together. A thermally conductive plate is positioned proximate the weld line in order to limit the thick foil melt pool and to function as a laser beam block. Accordingly, appropriate materials may be chosen for the foils and top plate so that the continuous wave laser beam couples optimally into the thick foil material and minimally into the top plate material. A thermocouple may be placed proximate the weld line to obtain measures of temperature used to vary the laser beam power and/or the slew rate.

WO 2005/030426 A2

WO 2005/030426 A2



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.